SINTESIS, KARAKTERISASI DAN AKTIVITAS KATALIS $Mg_{1-x}Zn_xF_{0,66}(OH)_{1,34}$ PADA REAKSI TRIMETILHIDROKUINON DAN ISOFITOL

Nama : Indri Setia Rahayu
NRP : 1412100013
Jurusan : Kimia ITS
Pembimbing : Prof. Dr. rer. nat Irmina Kris Murwani

ABSTRAK

Pada penelitian ini telah dilakukan sintesis katalis $Mg_{1-x}Zn_xF_{0,66}(OH)_{1,34}$. Struktur Kristal dikarakterisasi dengan Difraksi Sinar-X (XRD), ikatan yang ada pada katalis ditentukan dengan analisis FTIR, keasaman katalis ditentukan dengan piridin-FTIR serta luas permukaan spesifik(S_{BET}) diukur dengan adsorpsi gas nitrogen. Reaksi katalisis dilakukan pada reaksi antara trimetilhidrokuinon dan isofitol. Hasil XRD menunjukkan katalis $Mg_{1-x}Zn_xF_{0,66}(OH)_{1,34}$ bersifat amorf. Katalis hasil sintesis memiliki sisi asam Lewis dan sisi asam Brønsted. Katalis paling aktif $Mg_{0,9}Zn_{0,1}F_{0,66}(OH)_{1,34}$ yang memiliki konversi TMHQ tertinggi sebesar 81,08% dengan *yield* benzofuran masing-masing sebesar 47,53. Selektivitas benzofuran tertinggi dimiliki oleh $Mg_{0,9}Zn_{0,1}F_{0,66}(OH)_{1,34}$ yaitu 70,32%. Aktivitas katalis dipengaruhi oleh sisi keasaman Lewis, sedangkan selektivitas benzofuran dipengaruhi oleh sisi keasaman Brønsted.

Kata kunci: *Doping*, α-tokoferol, Benzofuran, Keasaman Katalis, MgF(OH), $Mg_{1-x}Zn_xF_{0,66}(OH)_{1,34}$

SYNTHESIS, CHARACTERIZATION AND ACTIVITY OF CATALYST $Mg_{1-x}Zn_xF_{0.66}(OH)_{1.34}$ ON TRIMETHYLHYDROQUINONE AND ISOPHYTOL REACTION

Name : Indri Setia Rahayu
NRP : 1412 100 013
Department : Chemistry ITS
Supervisor : Prof. Dr.rer.nat Irmina Kris Murwani

ABSTRACT

Synthesis catalyst $Mg_{1-x}Zn_xF_{0.66}(OH)_{134}$ have been investigated. Analysis of catalyst used FTIR to help clarify whether OH^- is present in the network, X-ray diffraction (XRD) to determine the crystal structure of the catalyst, pyridine-FTIR to determine the acidity both Lewis acidity and Brønsted acidity and nitrogen adsorption to determine the specific surface area (S_{BET}) of the catalyst. Result of XRD showed catalyst $Mg_{1-x}Zn_xF_{0.66}(OH)_{1.34}$ have a amorphous structure. Catalyst acidity showed Lewis acidity and Brønsted acidity. The results of catalytic testing were obtained by $Mg_{0.9}Zn_{0.1}F_{0.66}(OH)_{1.34}$ catalyst with conversion yield the highest benzofuran is 81.08% and 47.53%, respectively. The highest selectivity were obtained by $Mg_{0.925}Zn_{0.075}F_{0.66}(OH)_{1.34}$ is 70.32%, respectively. Activity of catalyst influenced by Lewis Acidity and benzofuran selectivity influenced by Brønsted Acidity.

Keyword: dopped, α-toxoferol, Benzofuran Acidity of Catalyst, $MgF(OH)$, $Mg_{1-x}Zn_xF_{0.66}(OH)_{1.34}$